

Massachusetts Community and State College Recycling: Fitchburg State College

FINAL REPORT
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Submitted to:
Eric Friedman
Director of State Sustainability
Mass. Executive Office of Environmental Affairs
251 Causeway St., 9th Floor
Boston, MA 02114-2150
617-626-1034 / fax 617-626-1180
email eric.friedman@state.ma.us

Submitted by:
Draper/Lennon, Incorporated
7 South State Street
Concord, NH 03301
603-229-1962 / fax 603-229-1960
email draperlennon@conknet.com

Fitchburg State College Summary (Table 3)

Our recommendations at FSC also focus on mixed paper plus cardboard (not currently recycled) and on beverage containers (not currently recycled). We again recommend recycling of mixed paper plus cardboard in a single (breakaway) compactor, taking advantage of FSC's proximity to a North Shore Recycled Fibers mill that can handle this mix. We estimate savings of \$11,600/year to \$15,900/year depending on whether a compactor is leased or purchased.

Like Bridgewater, we recommend that FSC should collect commingled beverage and food containers in a covered rolloff, to be hauled and processed at a Worcester area MRF. The cost of a container recycling program may range from \$3,700 (rolloff purchase) to \$5,500 (rolloff lease) per year.

We also recommend purchase of approximately \$6,000 in recycling supplies: two-wheeled recycling containers, deskside bins, and rolling 18-bushel soft-sided hampers.

We estimate that these enhancements to its recycling program will allow FSC to more than triple its recycling rate, from less than 10% to over 30%.

Fitchburg State College

Recycling Status, Issues, and Opportunities Fitchburg State College

Primary Contact: Joanne Soczek
Phone: 978-665-3756
Email: jsoczek@fsc.edu

Current Status

Fitchburg State College (FSC) manages effective recycling programs for multiple materials, including mixed paper, scrap metal, leaf and yard waste, electronic equipment, and universal wastes. Minor changes in FSC's management of mixed paper and scrap metal could yield meaningful improvement in recycling rates. In common with many other state schools, FSC finds Massachusetts' surplus property system to be cumbersome and complex to deal with, with the result that quantities of surplus property build up in storage areas. FSC would benefit from finding more efficient options to triage and dispose of surplus that can be managed outside of the state system.

FSC's recycling programs are managed by its facilities and maintenance staff. Staff resources are adequate. Like all state schools, FSC faces budget constraints that may make it difficult to purchase additional supplies and equipment needed to improve its recycling rates.

Issues / Opportunities

The two commodity streams that FSC clearly needs to address are cardboard and beverage containers. Neither is currently recycled; both are on the State's list of materials banned from landfill and incineration. There are revenue generating possibilities in cardboard that can at least partially offset the cost of recycling. Food and beverage containers generate little or no revenue, so emphasis should be placed on implementing the most cost-effective possible option to divert these materials from FSC's waste stream.

- **Containers:** Most cost-effective will be commingled collection into plastic bags that are used to line recycling containers (with can-only tops) that are placed in high traffic locations (cafeterias, student common areas, dormitories). The number of containers should be calculated so that they can be emptied by maintenance staff twice per week. Staff should pull the bags from the containers, tie them off, then transport and deposit the bags into a covered 30-cy rolloff container (fitted with a "dome top" cover with sliding access doors). When full, the container would be transported to E.L. Harvey in Westborough, the closest site capable of handling mixed containers.
- **Cardboard:** We believe that self-processing through a baler or compactor will be FSC's most cost-effective cardboard recycling option. Based on IRN experience with other schools, we estimate that FSC generates approximately 200 tons of cardboard per year, clearly enough to justify the cost of self-processing. The major points of generation on campus are two dining facilities, the campus bookstore, and the shipping/receiving area (campus stockroom). Collection should focus, at least initially, on these locations. FSC contracts its food service operations to an outside service provider, whose support will have to be engaged to assure good capture of cardboard from the dining areas.

Impacts on Waste Disposal

FSC's only quantitative information on waste and recycling is its reported 79 tons of mixed paper recycled in 2003 (based on industry averages, about 40% of FSC's mixed paper). Absent information on disposal, we cannot provide an overall estimate of current recycling rates. Cardboard typically constitutes 5-10% of

college wastes, and food/beverage containers typically constitute about 5%. The enhancements recommended here can be expected to add 10-20% to FSC's current recycling rate.

Fitchburg State College Massachusetts Community/State College Recycling: Current Practices and Potential Modifications			
Institution: Fitchburg State College		Date:	
Contact: Joanne Soczek		Phone: 978-665-3756	
		Email: jsoczek@fsc.edu	
Material	Current Practice	Recommended Modifications	Comments/Notes
Mixed Office Paper (unshredded)	All paper grades. Collected in desk side office baskets, consolidated into 95 gallon carts, brought to shipping dock for once a week pick up by BFI. Admin. and classrooms serviced by maintenance.	Volumes are low and with room for improvement. More desk baskets and carts needed, especially in common areas.	79 tons recycled in 2003, estimated 40% of generation. Shredded paper included in pick up, but must be in clear bags on the side.
Confidential Documents	Internal shredding		Recycled w/ mixed paper.
Newspaper/Magazine Mix	See above		
Cardboard	No	Start program focusing on both food areas. Must meet with contracted food service Chartwell.	Cardboard volume is huge here. Bookstore is also a large generator.
Other (Leaf/yard)	Grass clippings recovered by grounds department. Still waiting for volumes and end market handling.	None at this time.	Very good program and recovery efforts.
Beverage Containers	No	Start program, even if riding on the back of the paper program with current vendor.	Maintenance staff does pick through for redeemables.
Tin Cans	No		
Scrap Metal	Yes on materials generated internally. Facilities staff haul their own metals down to local transfer station. Volume unknown. Nothing too large. White goods are recovered as well.	Based on campus size, a medium sized metal container should help them out.	The metal recovery efforts are reactionary but meet their needs. Labor time may be a negative here. A dedicated container would increase recovery volumes.
Wood Waste	Sometimes if facilities can get it down to the transfer station.	Need to better understand volume.	Again, staff eager to recover wood, but need some extra space and education.
Computers/Electronic Equipment	Yes, through IRN. Recovered 4.57 tons in 2002. Will surpass that in 2003. Live load pick ups using hampers and gaylords. Storage is in the old gym.	Establish a storage system that involves only handling once, and keeps materials from brakeage potential.	They did a fairly large purge in 2002. Storage in gym is a bit concerning, as it again is growing.
Fluorescent Lamps & Ballasts	Yes, through IRN. Lamps, ballasts, and batteries. 0.28 tons in 2002.	Continue efforts to upgrade UW program.	Joanne is reviewing the UW program from start to finish. Several concerns regarding storage and containment are going through change.

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Material	Current Practice	Recommended Modifications	Comments/Notes
Batteries	With Univ. Wastes (see above)		
Surplus Property	Materials either go to State Surplus in Taunton or are sent to the local transfer station.	Need to review current storage system and material flow more closely.	Many materials end up in idle storage in the gym—losing value and risking damage. There could be several ways to reduce storage dependency and increase value from items.
Construction/Demolition	Yes and no. Small internal construction projects generate waste that is brought by facilities to the local transfer station. Some gets recycled. Large contractor projects do not involve recycling.	Provide the educational and policy tools to help them encourage contractor recycling	Doing a good job with internal projects, but need help on the big projects.

Fitchburg State College
Cost of Recommended Recycling Program Enhancements

Fibers

Recommendation: Compact mixed paper and cardboard in a single (breakaway) compactor. Compactor box hauled and returned to North Shore Recycled Fibers Fitchburg mill.

Estimated Cost of Fiber Recycling Program w/ Breakaway Compactor, Fitchburg SC		
Item	Units	Value
Estimated Fiber Generation (MP + OCC)	Tons/Yr	340
Current Fiber Recovery (Mixed Paper Only - No OCC is recycled)	Tons/Yr	79
Additional Fiber Available for Recovery	Tons/Yr	261
Estimated Percent Capture with Aggressive Program	%	80%
Estimated Total Recovery with Aggressive Program	Tons/Yr	272
Cost of Current Fiber Recycling Program (Unknown - Part of General Trash Cost)	\$/Yr	Unknown
Breakaway Compactor		
Purchase	\$\$	\$13,845
4-Year Lease-to-Own	\$/Yr	\$4,217
Rental, Breakaway Compactor Box	\$/Yr	\$1,440
Haul to North Shore Fitchburg	\$/Haul	\$225
Tons Per Haul to North Shore Fitchburg	Tons/Haul	5.0
Total Hauls Per Year	Hauls/Yr	68.0
Total Annual Cost of Hauls to North Shore Fitchburg	\$/Yr	\$15,300
Revenue, Mixed Paper + OCC	\$/Ton	\$25
Total Annual Revenues, Mixed Paper + OCC	\$/Yr	\$8,500
Avoided Disposal Cost (Haul + Tip)	\$/Ton	\$125
Avoided Disposal Cost, Current Recycling Program	\$/Yr	\$9,875
Avoided Disposal Cost, Total with Aggressive Recycling Program	\$/Yr	\$34,000
Annual Recycling Cost(Revenue) with Compactor Purchase	\$/Year	\$8,240
Annual Recycling Cost(Revenue) with 4-Year Lease-to-Own	\$/Year	\$12,457
Net Annual Cost(Savings) after Avoided Disposal Cost, Purchase	\$/Year	(\$25,760)
Net Annual Cost(Savings) after Avoided Disposal Cost, 4-Yr LTO	\$/Year	(\$21,543)
Net Annual Cost(Savings) after Avoided Cost, Accounting for Current Program, Purchase (Note 1)	\$/Year	(\$15,885)
Net Annual Cost(Savings) after Avoided Cost, Accounting for Current Program, 4-Yr LTO (Note 1)	\$/Year	(\$11,668)

Notes:

1 Actual savings will be higher because currently unknown cost of recycling component of existing trash contract will be eliminated

Beverage Containers

Recommendation: Commingled collection into plastic bags in recycling containers. Bagged containers placed in 30 CY covered rolloff. Rolloff to E.L. Harvey & Sons.

Estimated Cost of Beverage Container Recycling Program, Fitchburg SC		
Item	Units	Value
Estimated Container Generation	Tons/Yr	69
Estimated Recovery with Aggressive Program	%	75%
Estimated Tonnage Recovered with Aggressive Program	Tons/Yr	52
Rolloff Container		
Purchase	\$\$	\$6,000
Lease-to-Own, 4 Yr	\$\$/Yr	\$1,826
Haul Charge to E.L. Harvey	\$\$/Haul	\$225
Tons per Haul to E.L. Harvey	Tons/Haul	2.0
Hauls per Year to E.L. Harvey	Hauls/Yr	25.9
Total Cost of Hauls to E.L. Harvey	\$\$/Yr	\$5,822
Per Ton Processing Charge	\$\$/Ton	\$70
Total Annual Processing Charges	\$\$/Yr	\$3,623
Avoided Disposal Cost, Per Ton	\$\$/Ton	\$125
Avoided Disposal Cost, Total, with Aggressive Program	\$\$/Yr	\$6,469
Annual Cost with Rolloff Purchase	\$/Year	\$9,444
Annual Cost with 4 Year Lease-to-Own	\$/Year	\$11,270
Annual Cost, Purchase, Accounting for Avoided Disposal Cost	\$\$/Yr	\$2,976
Annual Cost, 4 Yr LTO, Accounting for Avoided Disposal Cost	\$\$/Yr	\$4,801

Recycling Containers

Recommendation: Purchase additional recycling containers

Cost of Recommended Recycling Supplies, Fitchburg State College			
Item	Number	Unit Cost	Total Cost
Deskside recycling bins	35	\$4.50	\$158
95-gallon wheeled recycling containers with beverage container tops (Schaefer or equivalent)	30	\$100	\$3,000
95-gallon wheeled recycling containers with slot (paper) tops (Schaefer or equivalent)	10	\$100	\$1,000
18-bushel hampers (OCC)	10	\$175	\$1,750
Total			\$5,908